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**TICKET SYSTEM****FIELD OF THE INVENTION**

The present invention relates to telecommunication systems. In particular, the invention relates to a method and a system for paying a reservation in a ticket booking system comprising a booking system; a service provider; a first telecommunication connection which is used to connect the booking system and the service provider with one another; a terminal device with an unambiguous identifier connected with it; and a service point. In the method, a service is booked through a service provider, the piece of reservation information required by the service is put on hold in the booking system to serve as the reservation of the client, and a confirmation is sent from the booking system to the service provider that verifies that the reservation was successfully put on hold.

**BACKGROUND OF THE INVENTION**

Services that are booked or used via the Internet are constantly increasing. The Internet enables one to use several on-line services, such as services connected with banks or stock trading.

Ericsson, Motorola, Nokia and Phone.com founded in 1997 the WAP Forum. The WAP Forum is among other things an open association of terminal manufacturers, operators and different service providers, which anyone can join. One specific objective of the WAP architecture is to enable the use of services provided by the Internet on terminals whose data processing capacity, size of display or storage capacity is small or restricted. Terminals as described above are, e.g. mobile stations and PDAs (PDA, Personal Digital Assistant). The WAP specification does not take a stand on the fact of how the overhead interface is implemented. This makes it possible for different opera-

tors, terminal manufactures and software manufactures to take advantage of the possibilities provided by the standards. More information about the wireless application protocol is available at the Internet address  
5 www.wapforum.com.

With portable terminals and mobile stations, a new transfer technology of a short range is associated. This is called the Bluetooth. Bluetooth is used to mean a radio system operating at the frequency of  
10 2,4GHz via which information may be transferred. The Bluetooth technology enables one to implement different services of the induction zone, e.g. adjustment measures.

Via the Internet it is possible to use different service booking systems, e.g. ticket booking systems. GDS (Global Distribution System) is used to mean a company which through its information system offers a booking service relating to air tickets, hotel rooms and car rental. The GDS network consists of  
20 the GDS company, the actual service provider (e.g. a hotel) and, e.g. a travel agency. Both the service provider and the travel agency have an on-line connection with the GDS company. By means of the GDS network, the travel agency can book, e.g. a hotel room at  
25 any hotel that is connected to the system of the GDS company.

There are systems in which the client may use his or her portable terminal, e.g. a mobile phone, to make reservation requests connected, e.g. with  
30 flights, hotel rooms or cars. Moreover, with the mobile station it is possible to change reservations already made. A notification may be sent to the portable terminal in such a case that the information connected with the reservation changes. This kind of case refers, e.g. to a situation where the client has booked  
35 an air ticket with his or her portable terminal. For some reason or another, the flight may be postponed or

it may be totally cancelled. A notification informing thereof may be sent to the terminal of the client in real time. The notification may be sent to the terminal of the client, e.g. via the mobile communication network. One such mobile communication network is the GSM network (GSM, Global System for Mobile communications).

Thanks to the portable terminals, such as mobile stations, the person booking a service can make his or her reservation wherever and whenever provided that the terminal is connected to a suitable telecommunication network. So, the person booking the service does not have to visit, e.g. a travel agency or to go to a computer provided with an Internet connection.

One specific problem at the moment is the fact that although the client can make a reservation connected with the aforementioned services wireless or otherwise electronically, he or she always has to pay the ticket or voucher connected with the reservation at a certain predetermined place, e.g. at the service desk of an airline company.

#### OBJECTIVE OF THE INVENTION

The objective of the invention is to eliminate the drawbacks referred to above, or at least significantly to alleviate them. One specific objective of the invention is to disclose a method and a system in which the payment connected with a service, e.g. a ticket booking service, can be either partly or wholly effected via a wireless terminal, which is preferably a mobile station.

#### BRIEF DESCRIPTION OF THE INVENTION

The invention relates to the paying of a reservation connected with a certain service by means of a terminal device. This kind of service may be, e.g.

the booking or buying of an air ticket. In the present invention, the wireless terminal plays an essential role in paying the reservation connected with a service.

5           The ticket booking system in accordance with the invention comprises a booking system, a service provider, a first telecommunication connection which is used to connect the booking system and the service provider with one another. In addition, the system  
10 comprises a terminal device with an unambiguous identifier connected with it and an identifier individualizing the service point. The terminal device in accordance with the invention is preferably a mobile station. The booking system is advantageously used to  
15 mean, e.g. a system via which it is possible to book air tickets, hotel rooms or hire a car. The company maintaining the booking system is usually called the GDS (GDS, Global Distribution System). The service provider in this application means, e.g. a travel  
20 agency or other corresponding company via which it is possible to buy or book relevant services.

As described above, in the method, a service is booked from a service provider. The reservation of the service may be done with a terminal, i.e. preferably  
25 bly with a mobile station. The service may be booked by any other means as well, e.g. by phoning the service provider with a regular telephone, or by booking the service via the Internet, or by visiting the offices of the service provider on site. Based on the  
30 booked service, a piece of reservation information is created that is put on hold in the booking system to serve as the reservation of the client. The reservation that was made is confirmed by sending a confirmation message from the booking system to the service  
35 provider.

According to the invention, there is a reservation server arranged in the ticket booking system.

The reservation server is in communication with the service provider who informs the reservation server of the reservation. On the reservation server, information is saved that is transmitted by the service provider. This kind of information may be, e.g. a reservation identifier individualizing the reservation, an unambiguous piece of identification information connected with the terminal device, the e-mail address of the user of the terminal device, a user identifier connected with the client and a password connected with the user identifier. Information connected with the confirmation of the reservation may be sent from the reservation server to the terminal device. This kind of information is, e.g. the reservation number connected with the reservation.

To the reservation server, information is transmitted that individualizes the aforementioned reservation, service point and/or terminal device. Information to the reservation server may be transmitted directly from the terminal device. Alternatively, the terminal device may send information first to the service point after which the service point sends information further to the reservation server. To identify a reservation made earlier, the terminal device may transmit its own unambiguous piece of identification information to the reservation server. This piece of identification information is advantageously used to mean the MSISDN number connected with a mobile station (MSISDN, Mobile Subscriber Integrated Services Digital Network). In addition to this, the terminal device may transmit to the reservation server also other information relating to the reservation, such as the reservation number connected with the reservation.

In an embodiment of the invention, the terminal device sends to the reservation server, in addition to the aforementioned information, also the piece of identification information individualizing the

service point. Alternatively, the terminal device may transmit the information as described above first to the service point, which adds to the information its own individualizing identifier and sends the information further to the reservation server.

In an embodiment of the invention, a notification is generated by means of the reservation server that is sent to the terminal device. The notification is meant to disclose the fact that a reservation made earlier can now be paid. This kind of situation may emerge, e.g. in such a case when the client has booked a service earlier, e.g. an air ticket to a desired destination. The message received from the reservation server is therefore meant to notify that the check-in connected with the flight may now be started. Based on the notification received from the reservation server, the terminal device knows where to send the unambiguous identifier connected with the terminal device and/or other information connected with the reservation made earlier.

When the reservation server has received information connected with a certain reservation from the terminal device or service point, it makes sure of the fact that based on the information received, the aforementioned reservation can be identified unambiguously. As a consequence of the checking, an unambiguous piece of indication information connected with the reservation may be generated. Based on this piece of indication information, the reservation can finally be paid.

The reservation server sends the aforementioned unambiguous piece of indication information concerning the reservation to the service point, if the paying of the reservation is effected via a service point. The unambiguous piece of indication information concerning the reservation can be sent to a certain service point based on the fact that the unam-

biguous identifier connected with the service point was earlier sent to the reservation server by the terminal device or the service point. Attached to the identifier, for its part, is a certain IP address (IP, Internet Protocol), which is the address of the service point. Attached to the service point, or a part of it, can be a notification unit which is used to generate a voucher to the user of the terminal device of the paying of the reservation. The notification unit may be used to mean, e.g. a printer device that is used to print out, e.g. a boarding card to the user of the terminal device.

If the paying of the reservation is effected via the reservation server, there is no need to send the piece of indication information concerning the unambiguous reservation to the service point. Once the payment of the reservation has been effected, the reservation server may send information to the notification unit, which generates a voucher of the paying of the reservation to the user of the terminal device.

In an embodiment of the invention, the notification informing of the paying of the reservation is sent from the reservation server or service point to the terminal device in an electronic form. The notification includes, e.g. information connected with the reservation that is needed after the paying. This kind of information may be, e.g. a seat number connected with a flight. If necessary, the service point may automatically retrieve the electronic notification from the terminal device, if some later service measure requires this. A later measure may mean, e.g. the admitting of a passenger to the aeroplane. In this case, the electronic notification retrieved from the terminal device is a boarding card connected with the flight that entitles one to the admission to the aeroplane.



In an embodiment of the invention, the communication between the terminal device and the service point is implemented via a wireless data transfer. The wireless data transfer is used to mean, e.g. an infrared connection or a Bluetooth connection.

The system in accordance with the invention comprises a reservation server on which information transmitted by the service provider may be stored; a second telecommunication connection via which information is being transmitted between the service provider and the reservation server; and a means of communication via which information individualizing the aforementioned reservation, service point and/or terminal device is transmitted to the reservation server. In addition, the system comprises a confirmation entity that is used to make sure of existence of the reservation identified by the received information, and a confirmation unit by means of which the aforementioned reservation is paid, if the checking of the reservation was successful.

In an embodiment of the invention, the system comprises a third telecommunication connection via which information is transmitted between the reservation server and the terminal device.

In an embodiment of the invention, the system comprises a data recorder for attaching to the reservation, when making it, the unambiguous identifier connected with a certain terminal device.

In an embodiment of the invention, the system comprises a fourth telecommunication connection via which information is being transmitted between the terminal device and the service point; and a fifth telecommunication connection via which information is being transmitted between the service point and the reservation server.

In an embodiment of the invention, the system comprises a first information unit which is used to

generate and send from the reservation server to the terminal device a notification informing that the reservation can be paid.

5 In an embodiment of the invention, the system comprises a generator of indication information for generating an unambiguous piece of indication information concerning the reservation.

10 In an embodiment of the invention, the system comprises a sixth telecommunication connection via which the aforementioned reservation may be paid based on the unambiguous piece of indication information by means of the service point.

15 In an embodiment of the invention, the system comprises a seventh telecommunication connection via which the aforementioned reservation may be paid based on the unambiguous piece of indication information by means of the reservation server.

20 In an embodiment of the invention, the system comprises a second information unit which is used to send the unambiguous piece of indication information connected with the aforementioned reservation from the reservation server to the service point.

25 In an embodiment of the invention, the system comprises a notification unit which generates to the user of the terminal device a voucher of the paying of the reservation.

In an embodiment of the invention, the terminal device and/or the service point comprise facilities for a wireless data transfer.

30 In an embodiment of the invention, one or more of the aforementioned telecommunication connections are connected with the wireless data transfer. One or more of the aforementioned telecommunication connections may be a connection connected with the  
35 telecommunication network, such as the Internet or the mobile communication network.

Thanks to the present invention, a wireless terminal may be used for the paying of a reservation that was made earlier. Thanks to the present invention, the paying of the reservation may be effected  
5 entirely by means of the electronic data transfer just by using a wireless terminal, which is preferably a mobile station. The paying may be implemented, e.g. by connecting the terminal device to an adapter or similar at a paying point, and by transmitting the necessary  
10 information via the adapter.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the following section, the invention will be described in detail by the aid of a few examples of  
15 its embodiments, in which

Fig. 1 represents one advantageous system in accordance with the invention,

Fig. 2 is one advantageous example of a flow chart representing the function of the present invention,  
20 tion,

Fig. 3 is one advantageous example of a flow chart representing the function of the present invention,

Fig. 4 is one advantageous example of a flow chart representing the function of the present invention,  
25 chart representing the function of the present invention,

Fig. 5 is one advantageous example of a flow chart representing the function of the present invention,

Fig. 6 is one advantageous example of a flow chart representing the function of the present invention, and  
30

Fig. 7 is one advantageous example of a flow chart representing the function of the present invention.  
35

#### DETAILED DESCRIPTION OF THE INVENTION

The system as shown in Fig. 1 comprises a booking system GDS, a service provider TA, a reservation server STS, a service point SERV and a terminal device MS. In this example the service provider TA is a part of the booking system GDS. The service provider TA is used to mean, e.g. a travel agency through which it is possible to book, e.g. air tickets, hotel rooms or hire cars. The booking system GDS means in this example a global service booking system through which, e.g. via the Internet, it is possible to book the aforementioned services. In addition, in this example, the booking system GDS comprises a GDS server, a ticket system of the airline company AS. Connected both to the GDS server and to the ticket system of the airline company is the database DB. The databases DB comprise information, e.g. on the ticket system as well as on the space already booked or still available. The service provider TA and the GDS server are connected to one another via the first telecommunication connection TC1.

By means of the terminal device MS it is possible to be in communication with the reservation server STS via the third telecommunication connection TC3 and with the service point SERV via the fourth telecommunication connection TC4. The terminal device MS is advantageously used to mean a mobile station. The third telecommunication connection TC3 is used to mean, e.g. a communication taking place via the mobile communication network. The fourth telecommunication connection TC4 is used to mean, e.g. the data transmission via the wireless connection. One example of a technique enabling the wireless connection is the so-called Bluetooth technique. Bluetooth is used to mean a radio connection of a short range. If the telecommunication connection TC4 means the same as the Bluetooth connection, then both the terminal device MS and the service point SERV comprise the necessary features

and components to enable the communication. The service point SERV has been connected to the reservation server STS by means of the fifth telecommunication connection TC5.

5           The service point SERV comprises a means of communication IO which is used to receive and transmit to the reservation server STS information individualizing the reservation, service point SERV and/or terminal device MS. The information individualizing the  
10 service point SERV is used to mean, e.g. a specific identifier which is connected with a certain service point SERV. The service point SERV may comprise, in addition, a notification unit PRT which may be used to generate a voucher of the paying of the reservation to  
15 the user of the terminal device. The notification unit PRT is used to mean, e.g. a device printing out, e.g. a boarding card. The service point SERV may be connected to the GDS server and/or to the ticket system of the airline company AS via the sixth telecommunication  
20 connection TC6.

          The means of communication IO may be implemented, e.g. by program blocks by the aid of the computer or by some other means known in itself, and it is therefore not described in detail in this connection.  
25

          The reservation server STS comprises a first notification unit PGM1 which may be used to generate and send to the terminal device MS a notification informing that the reservation that was made earlier may  
30 now be paid. The notification is used to mean, e.g. a short message which is sent to the terminal device MS. The reservation server STS comprises a second notification unit PGM2 which may be used to send the unambiguous piece of indication information connected with a  
35 reservation made earlier to the service point SERV. The reservation server STS comprises a confirmation entity CONF which is used to check the existence of

the reservation individualized by the received information. The received information is used to mean, e.g. the information received, e.g. from the terminal device MS or the service point SERV. The reservation  
5 server STS comprises a generator GEN which is used to generate the unambiguous piece of indication information concerning the reservation. Based on this piece of indication information, the reservation may be surely identified and paid. The reservation server STS  
10 may also comprise a confirmation unit RES by means of which the reservation is paid. The paying is used mean that a certain reservation may be unambiguously connected with a certain client or a terminal device of the client. The paying may be effected by retrieving  
15 information connected with the reservation, e.g. from the GSD server and/or the ticket system of the airline company AS. The reservation server STS has been connected to the service provider TA by means of the second telecommunication connection TC2 and to the GDS  
20 server and/or to the ticket system of the airline company AS by means of the seventh telecommunication connection TC7.

The first reservation unit PGM1, the second reservation unit PGM2, the confirmation entity CONF,  
25 generator GEN and confirmation unit RES may be implemented, e.g. by program blocks by the aid of the computer or by some other means known in itself, and it is therefore not described in greater detail in this connection.

30 One or more of the telecommunication connections TC1, TC2, TC3, TC4, TC5, TC6 and TC7 may be connected with the wireless data transfer. Further, one or more of the telecommunication connections TC1, TC2, TC3, TC4, TC5, TC6 and TC7 may be a connection connected with the telecommunication network, e.g. the  
35 Internet or the mobile communication network.

Fig. 2 is one advantageous example of a flow chart representing the function of the present invention. The example as shown in Fig. 2 comprises a terminal device MS, a service provider TA, a reservation server STS, a service point SERV, a notification unit PRT, a booking system GDS and a ticket system of an airline company AS. In this example the terminal device MS is preferably a mobile station, the service provider TA a travel agency and the notification unit PRT a printer.

The client contacts the travel agency TA wishing to book an air ticket. In this example the reservation is made with the mobile station MS. However, this is just one way of making the reservation, and the invention is by no means restricted to a reservation made with a mobile station. If the client has not made any reservations via the travel agency TA before, the travel agency may ask the client to give some additional information about himself/herself, such as an e-mail address, user ID or password corresponding to it.

When making the reservation the travel agency TA is transmitted the unambiguous identifier connected with the terminal device MS of the client which is used to mean, e.g. the MSISDN number. If the client makes his or her reservation by some other means than with the mobile station, he or she may be asked to give the number of his or her mobile station MS in conjunction with the reservation. From the travel agency TA there is a connection arranged with the booking system GDS. The travel agency TA asks the booking system GDS to make the reservation requested by the client. The booking system GDS returns to the travel agency TA the reservation number connected with the reservation, if the reservation can be made. The travel agency TA transmits the information received from the client as well as the reservation number con-

ected with the reservation further to the reservation server STS. The reservation server STS saves the information received by it to its memory. In this example, the reservation server comprises, e.g. the following information relating to the reservations or clients:

- Booking#: the reservation number connected with the reservation given by the booking system.
- Phone#: the identifier individualizing the terminal device of the client, e.g. the MSISDN number.
- Email Address: the e-mail address of the client.
- User ID and password: the user ID of the client and the password connected with the user ID.

The travel agency TA may send to the mobile station MS a notification which comprises, e.g. the reservation number connected with the reservation. The notification is used to mean, e.g. the short message of a mobile communication network. Alternatively, the notification may be sent from the reservation server STS.

Upon arrival at the airport the client looks for the service point SERV via which it is possible to pay the reservation that was made earlier. Connected with the service point SERV is an unambiguous identifier based on which the service point SERV may be identified. In addition, there has to be a data transmission connection between the reservation server STS and the service point SERV. This is enabled, e.g. by connecting both the reservation server STS and the service point SERV to an Internet data transmission network and by determining a relevant IP address for both of them. The operation of the service point SERV may be, when required, restricted in such a way that it may receive information solely from an IP address connected with the reservation server STS. The client



acterised in that the system comprises a seventh telecommunication connection (TC7) along which the aforementioned reservation may be paid based on the unambiguous piece of indication information by means of the reservation server (STS).

24. A system as defined in any one of the preceding claims, 16, 17, 18, 19, 20, 21, 22, or 23, characterised in that the system comprises a second notification unit (PGM2) which is used to send the unambiguous piece of indication information connected with the aforementioned reservation from the reservation server (STS) to the service point (SERV)

25. A system as defined in any one of the preceding claims 16, 17, 18, 19, 20, 21, 22, 23 or 24, characterised in that the system comprises a notification unit (PRT) which is used to generate to the user of the terminal device (MS) a voucher verifying the paying of the aforementioned reservation.

26. A system as defined in any one of the preceding claims 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25, characterised in that the terminal device (MS) and/or the service point (SERV) comprise facilities to a wireless data transfer.

27. A system as defined in any one of the preceding claims 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 or 26, characterised in that one or more of the telecommunication connections (TC1, TC2, TC3, TC4, TC5, TC6, TC7) are connected with the wireless data transfer.

28. A system as defined in any one of the preceding claims 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 or 27, characterised in that one or more of the telecommunication connections (TC1, TC2, TC3, TC4, TC5, TC6, TC7) is a connection connected with the Internet and/or the mobile communication network.

29. A system as defined in any one of the preceding claims 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 or 28, characterised in that the terminal device (MS) is a mobile station.

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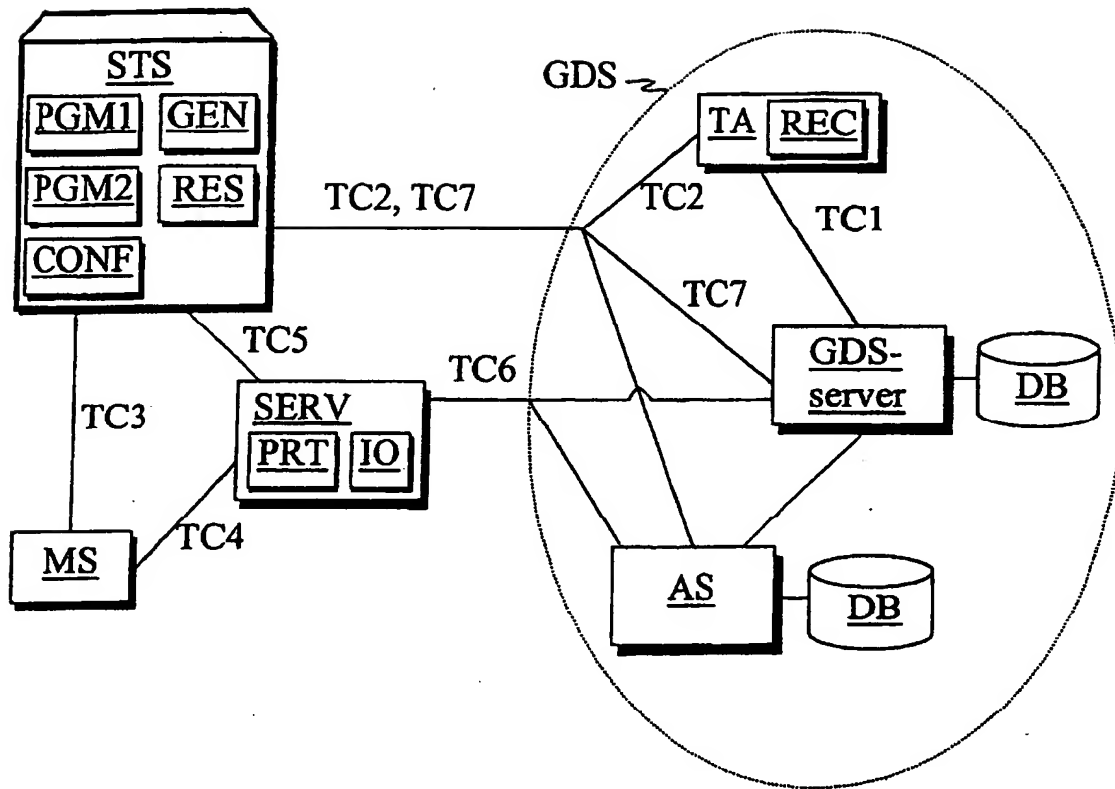


Fig. 1

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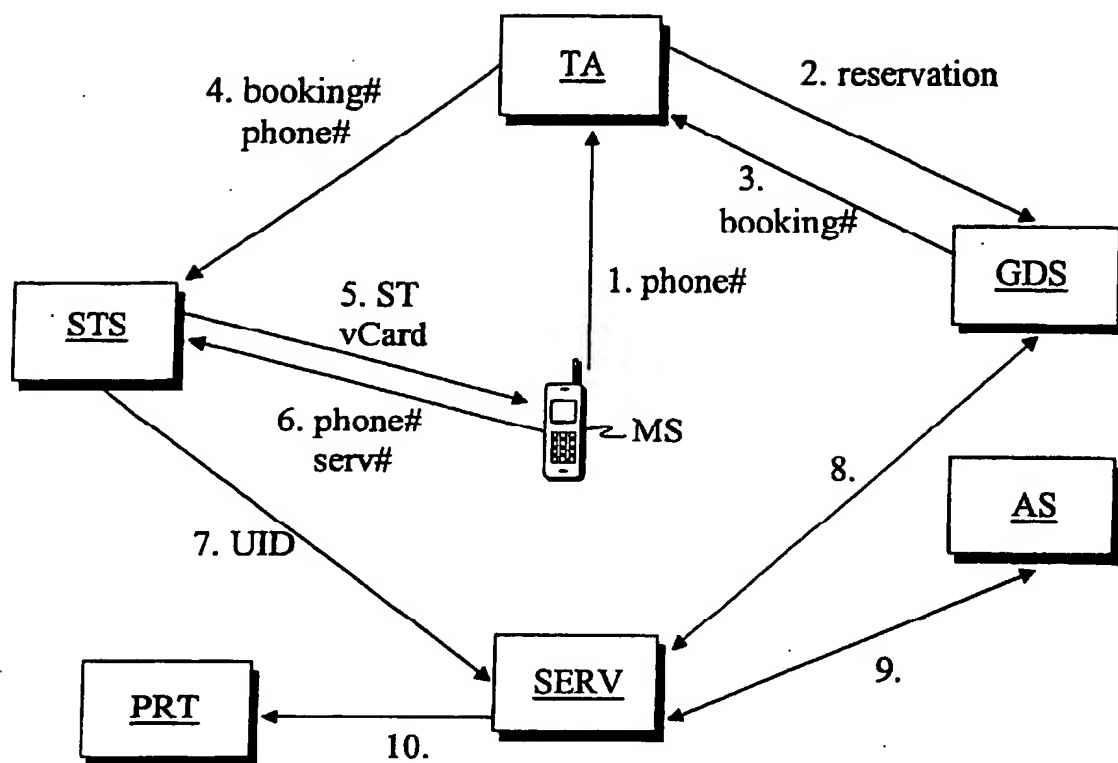


Fig. 2

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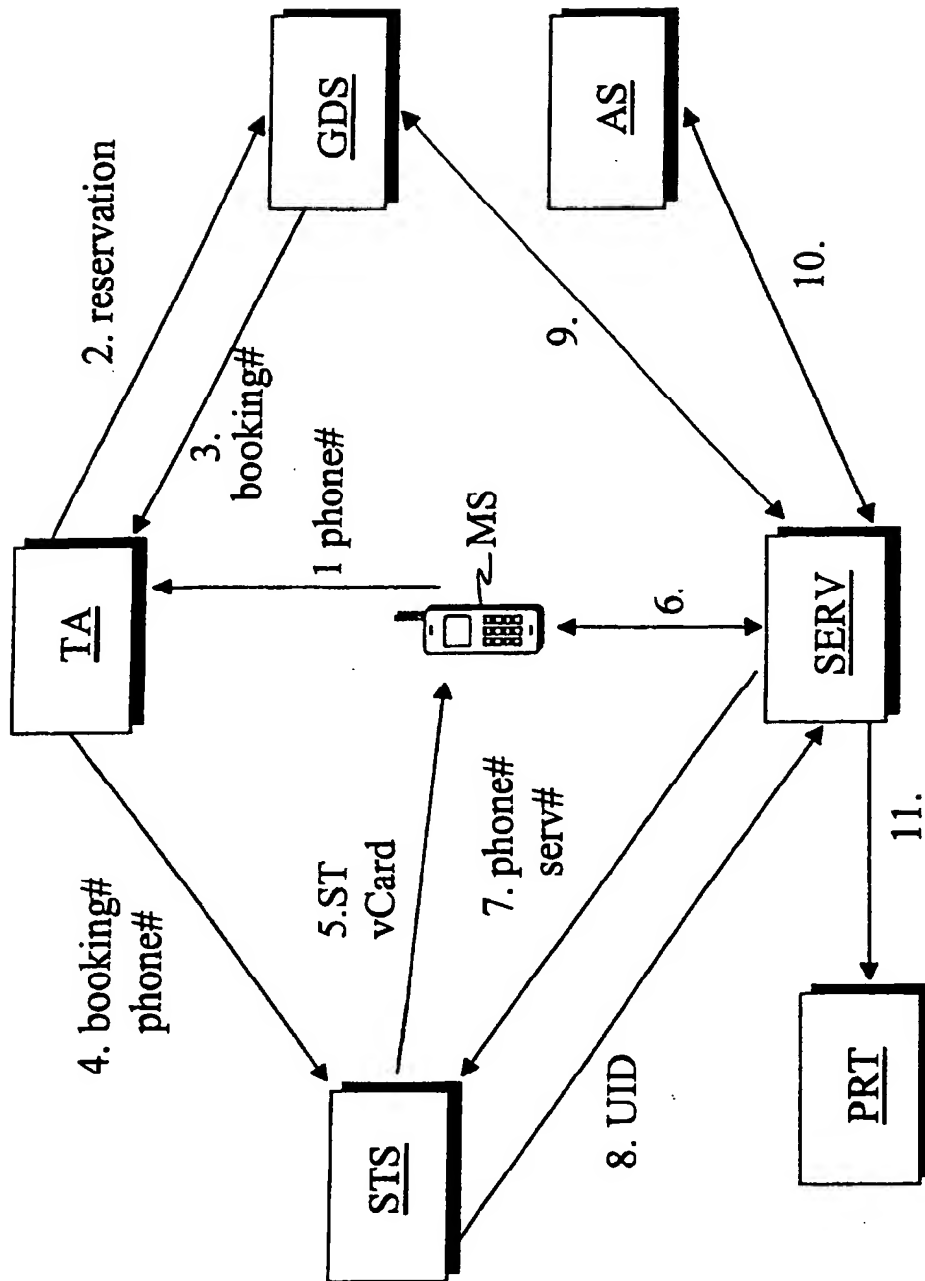


Fig. 3

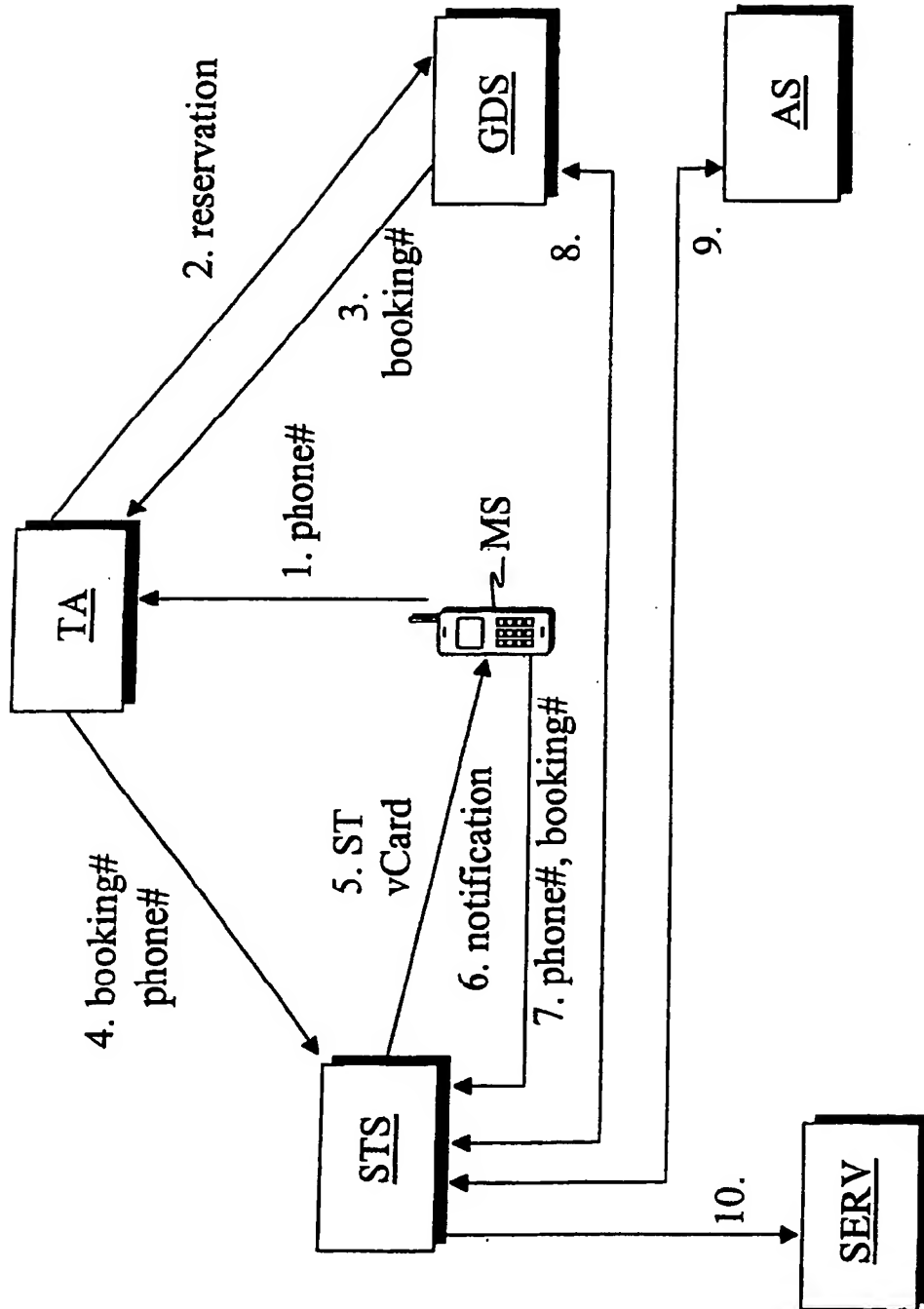


Fig. 4

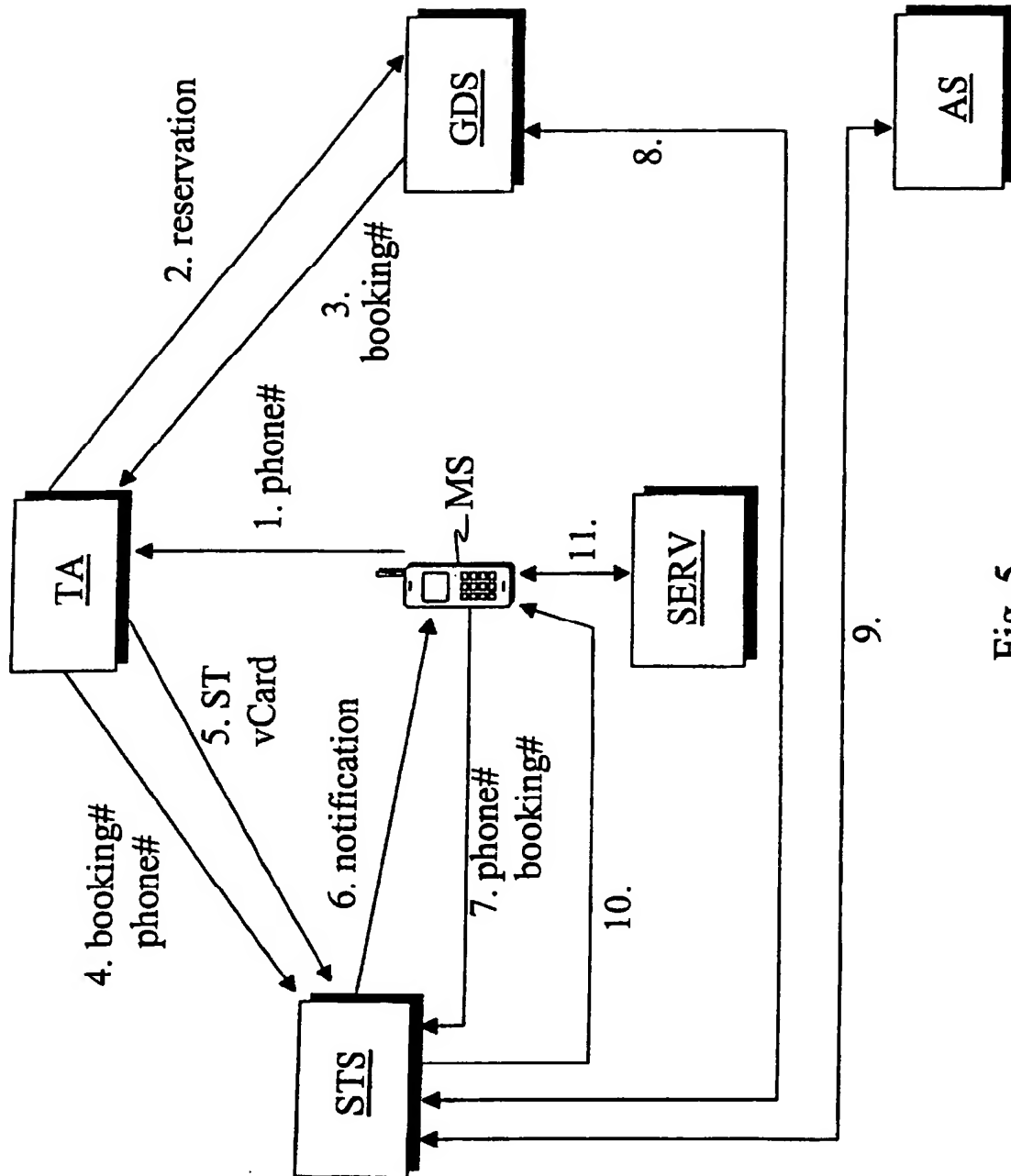


Fig. 5

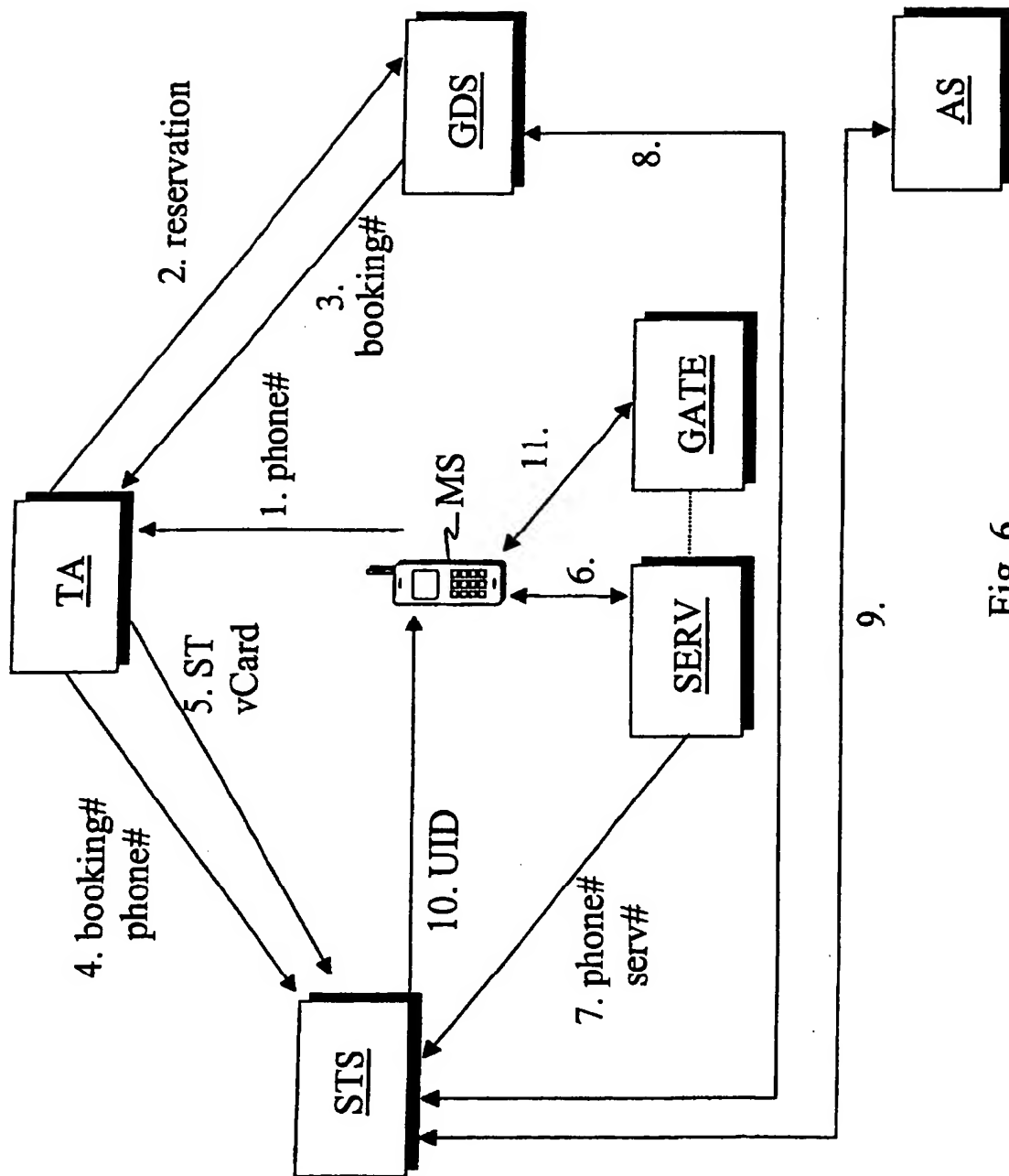


Fig. 6



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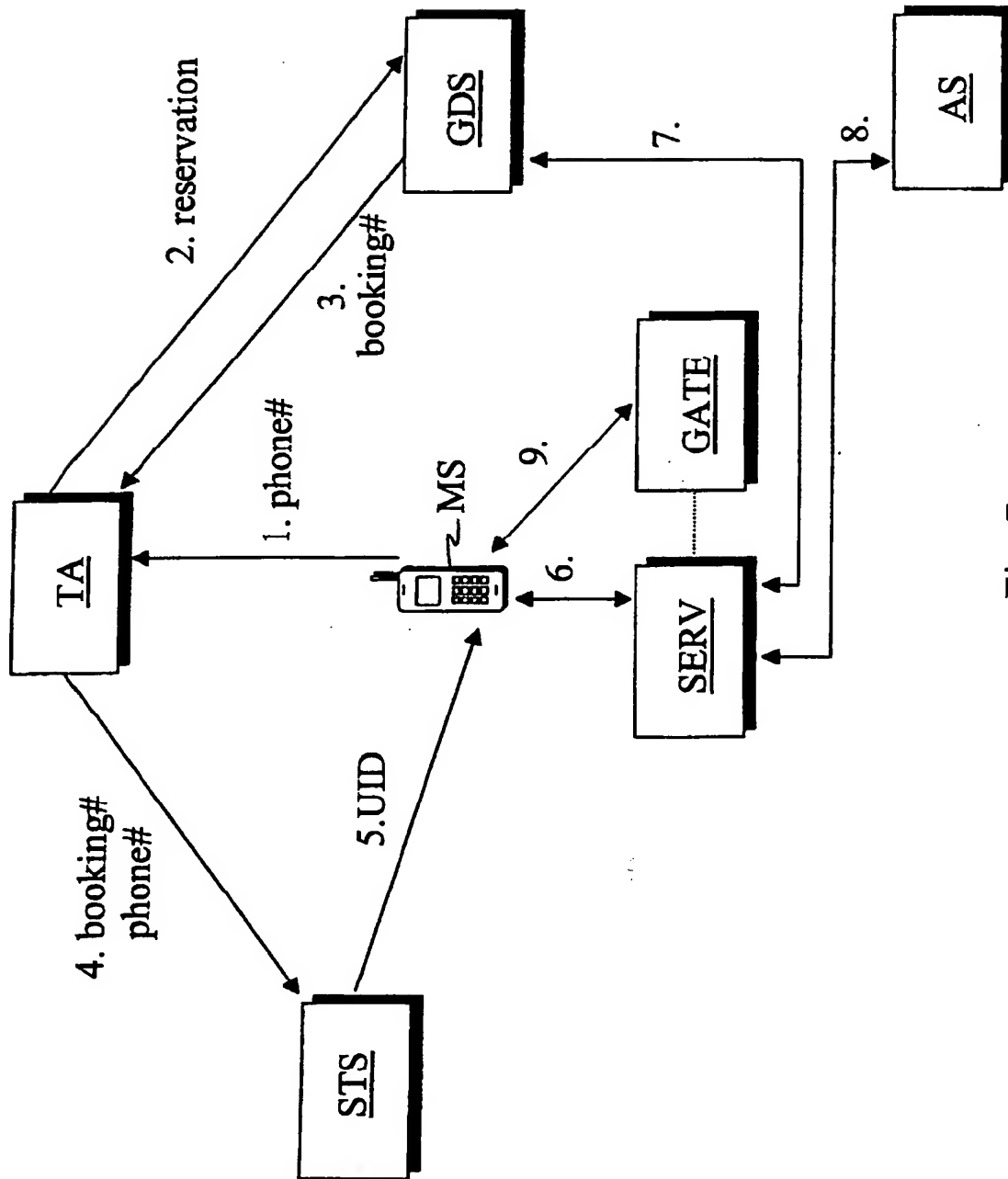


Fig. 7

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/01017

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/16, G06F 19/00, G07B 1/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F, G07B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	WO 9517733 A1 (ÖHRN, HARALD), 29 June 1995 (29.06.95) --	1-29

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
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Date of the actual completion of the international search

15 February 2001

Date of mailing of the international search report

27 -02- 2001

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/01017

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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International application No.

PCT/FI 00/01017

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Form PCT/ISA/210 (continuation of second sheet) (July 1998)

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/FI 00/01017

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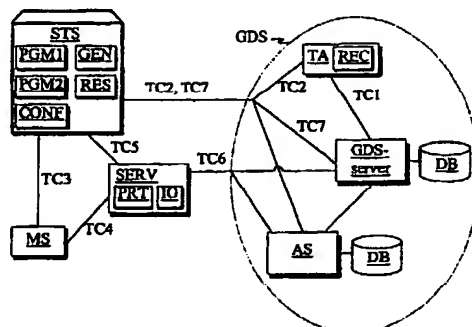
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- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): VERNON, Malcolm [GB/GB]; 67 Westwick Gardens, West Kensington, London, Greater London W14 0BS (GB). VUORISTO, Kalle [FI/FI]; Vellamonkatu 29 A 10, FIN-00550 Helsinki (FI).
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(54) Title: TICKET SYSTEM



WO 01/39033 A1

(57) Abstract: The present invention relates to a method and a system for paying the reservation of a client in a ticket booking system which comprises a booking system (GDS); a service provider (TA); a first telecommunication connection (TC1) which is used to connect the booking system (GDS) and the service provider (TA) to one another; a terminal device (MS) with which an unambiguous piece of identification information is connected; and a service point (SERV). In the method, a service is booked from the service provider (TA); the piece of reservation information required by the service is put on hold in the booking system (GDS) to serve as the reservation of the client; and a confirmation is sent from the booking system (GDS) to the service provider (TA) that verifies that the reservation was successfully put on hold. According to the invention, the booking system has been provided with a reservation server (STS), and the method further comprises the following steps. In the method in accordance with the invention, information is transmitted from the service provider (TA) to the reservation server (STS) that relates to the aforementioned reservation; the reservation information transmitted by the service provider (TA) is saved on the reservation server (STS); information individualizing the aforementioned reservation, service point (SERV) and/or terminal device (MS) is transmitted to the reservation server; it is checked that the aforementioned reservation individualized by the received information exists; and the aforementioned reservation is paid, if the checking of the reservation was successful.

20 June 2002

**(15) Information about Correction:**

see PCT Gazette No. 25/2002 of 20 June 2002, Section II

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A. CLASSIFICATION OF SUBJECT MATTER

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

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